CATERPILLAR

Service Manual

390D L EXCAVATOR

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Product: EXCAVATOR
Model: 390D L EXCAVATOR WAP
Configuration: 390D L Excavator WAP00001-UP (MACHINE) POWERED BY C18 Engine

Disassembly and Assembly
C15 and C18 Engines for Caterpillar Built Machines
Media Number -RENR8261-28 **Publication Date -01/08/2015** **Date Updated -28/08/2018**

i07498917

Air Compressor Drive Gear - Remove and Install

SMCS - 1803-010-GE

Removal Procedure

Table 1

Required Tools			
Tool	**Part Number**	**Part Description**	**Qty**
A	132-5451	Holding Fixture	1

Start By:

a. Remove the air compressor. Refer to Disassembly and Assembly, "Air Compressor - Remove and Install".

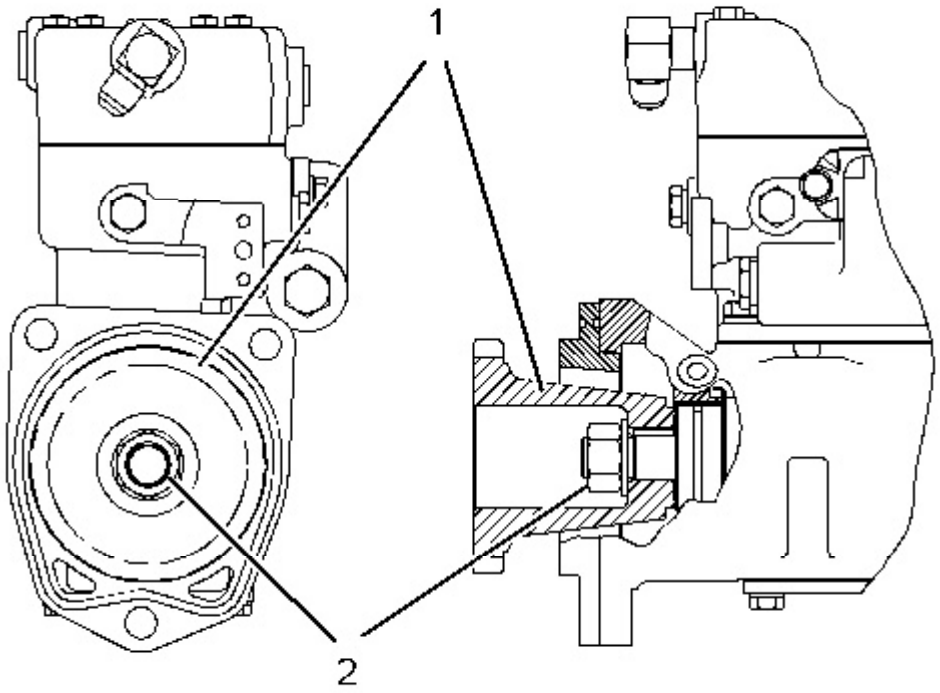

Illustration 1 g01148907

1. Install Tooling (A) on air compressor drive gear (1).
2. Remove nut (2).
3. Remove air compressor drive gear (1).

Installation Procedure

Table 2

Required Tools			
Tool	**Part Number**	**Part Description**	**Qty**
A	132-5451	Holding Fixture	1

Note: Caterpillar may use air compressors that have a tapered shaft or a straight shaft. The torque for the nut on the air compressor crankshaft is different for each type of crankshaft.

Note: Identify the manufacturer of the air compressor for your particular application.

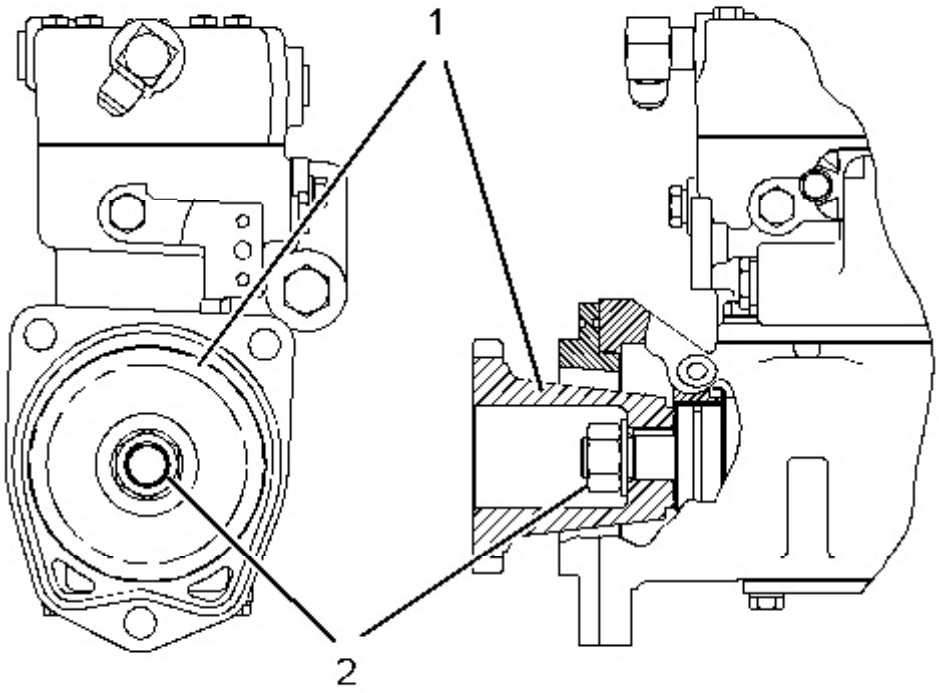

Illustration 2 g01148907

1. Install air compressor drive gear (1) on the air compressor.
2. Install Tooling (A) on air compressor drive gear (1).
3. Install nut (2).

Tapered Shaft on Bendix Air Compressor

1. Tighten nut (2) to a torque of 160 ± 15 N·m (118 ± 11 lb ft).
2. Tap the gear axially with a soft faced hammer to seat the gear onto the tapered crankshaft.
3. Tighten the nut again to a torque of 160 ± 15 N·m (118 ± 11 lb ft).

Straight Shaft on Bendix Air Compressor

1. Tighten nut (2) to a torque of 460 ± 60 N·m (340 ± 44 lb ft).

Wabco 250 Air Compressor

1. Tighten nut (2) to a torque of 150 ± 5 N·m (111 ± 4 lb ft).
2. Place an index mark on the nut and rotate nut (2) an additional 60 ± 5 degrees.

End By:

a. Install the air compressor. Refer to Disassembly and Assembly, "Air Compressor - Remove and Install".

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Media Number -RENR8261-28 **Publication Date -01/08/2015** **Date Updated -28/08/2018**

i07498912

Air Compressor - Remove and Install - If Equipped

SMCS - 1803-010

Removal Procedure

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting, and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Refer to Special Publication, PERJ1017, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat® products.

Dispose of all fluids according to local regulations and mandates.

WARNING

Do not disconnect the air lines until the air pressure in the system is at zero. If hose is disconnected under pressure it can cause personal injury.

1. Loosen the purge valves, and release the air pressure in the air tank.

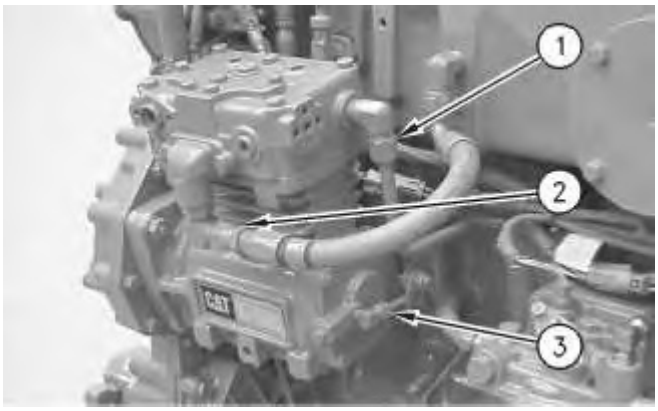

Illustration 1 g00620850
Typical example

2. Disconnect coolant supply line (1) and air supply line (2) from the air compressor.
3. Disconnect oil supply line (3) from the air compressor.

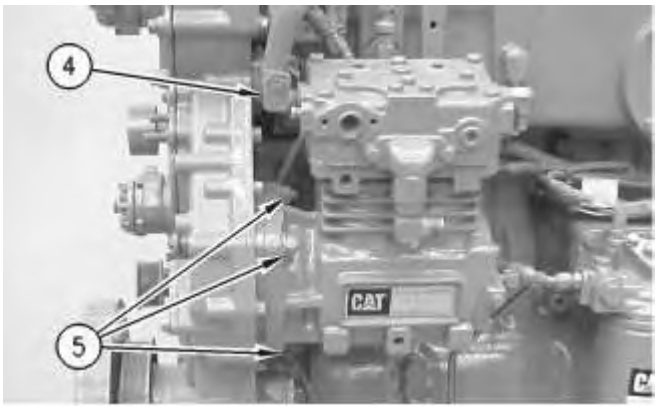

Illustration 2 g00620840
Typical example

4. Remove coolant line (4) from the air compressor.
5. Remove nuts (5) that hold the air compressor to the accessory drive.
6. Remove the air compressor from the engine.

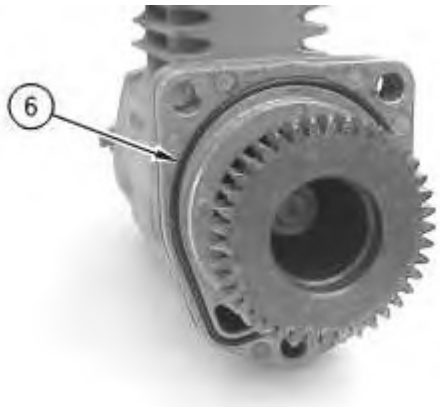

Illustration 3 g00620856

Typical example

7. Remove seal (6) from the air compressor.

Installation Procedure

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

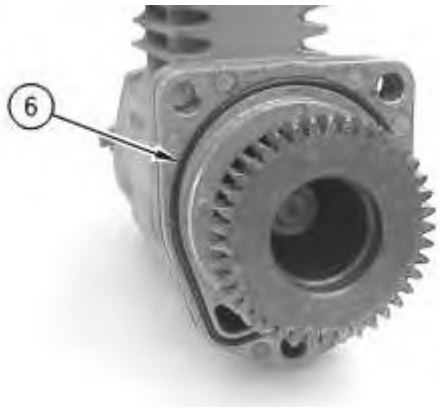

Illustration 4 g00620856

Typical example

1. Install new seal (6) on the air compressor.
2. Install the air compressor on the engine.

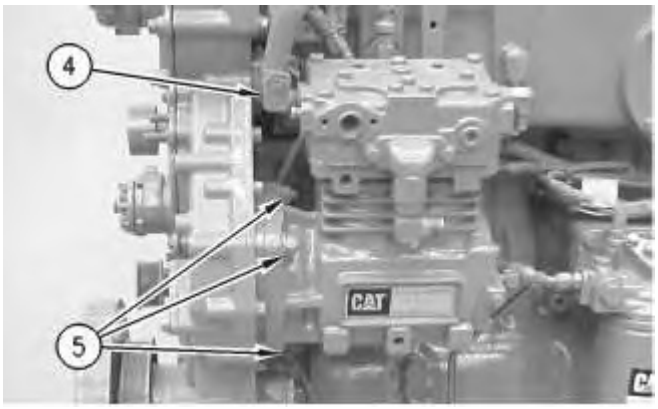

Illustration 5 g00620840

Typical example

3. Install nuts (5) to hold the air compressor on the engine.
4. Connect coolant line (4) to the air compressor.

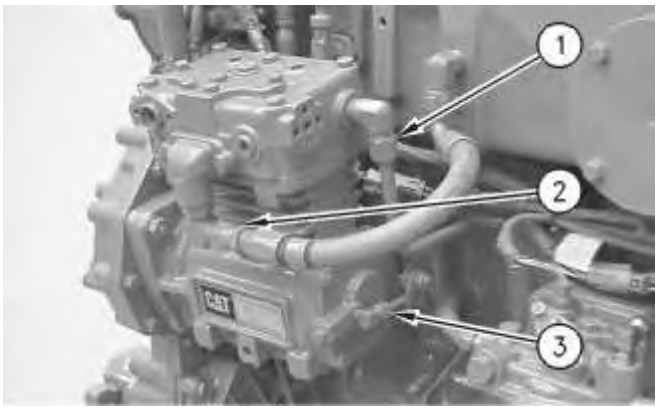

Illustration 6 g00620850

Typical example

5. Connect coolant supply line (1) to the air compressor.
6. Connect air supply line (2) to the air compressor.

NOTICE

To prevent water from collecting and freezing in the air compressor lines, ensure that the air compressor lines are sloping downward and away from the air compressor.

7. Connect oil line (3) to the air compressor.

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Product: EXCAVATOR
Model: 390D L EXCAVATOR WAP
Configuration: 390D L Excavator WAP00001-UP (MACHINE) POWERED BY C18 Engine

Disassembly and Assembly
C15 and C18 Engines for Caterpillar Built Machines
Media Number -RENR8261-28 **Publication Date -01/08/2015** **Date Updated -28/08/2018**

i02213741

Electric Starting Motor - Remove and Install

SMCS - 1453-010

Removal Procedure

WARNING

Accidental engine starting can cause injury or death to personnel working on the equipment.

To avoid accidental engine starting, disconnect the battery cable from the negative (−) battery terminal. Completely tape all metal surfaces of the disconnected battery cable end in order to prevent contact with other metal surfaces which could activate the engine electrical system.

Place a Do Not Operate tag at the Start/Stop switch location to inform personnel that the equipment is being worked on.

1. Disconnect the batteries.
2. Place identification marks on all of the harness assemblies that are connected to the electric starting motor and the solenoid.

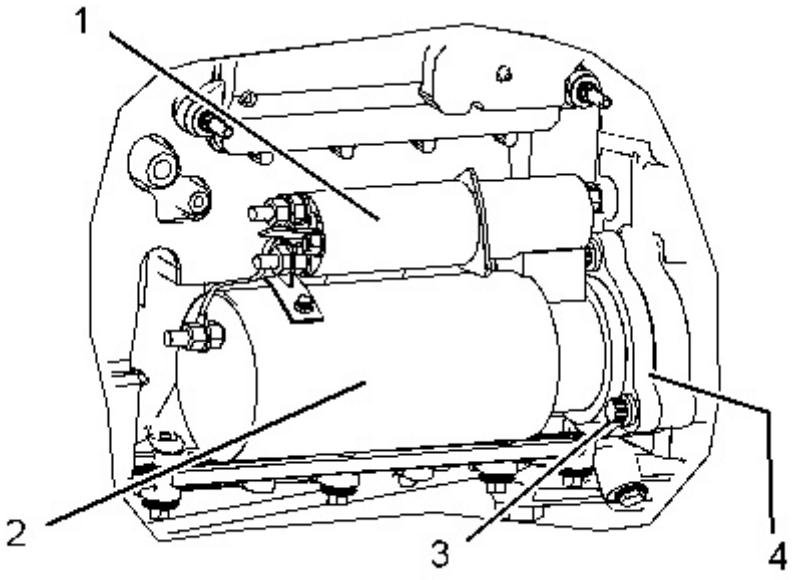

Illustration 1 g01117216

3. Disconnect the harness assemblies from solenoid (1).
4. Fasten a suitable lifting device to electric starting motor (2). The weight of electric starting motor (2) is approximately 26 kg (57 lb).
5. Remove bolts (3). Remove electric starting motor (2) and gasket (4).

Installation Procedure

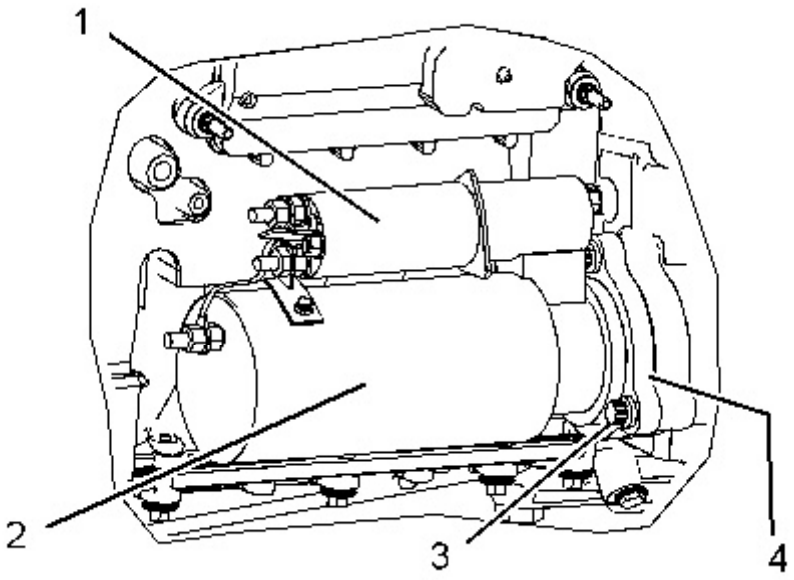

Illustration 2 g01117216

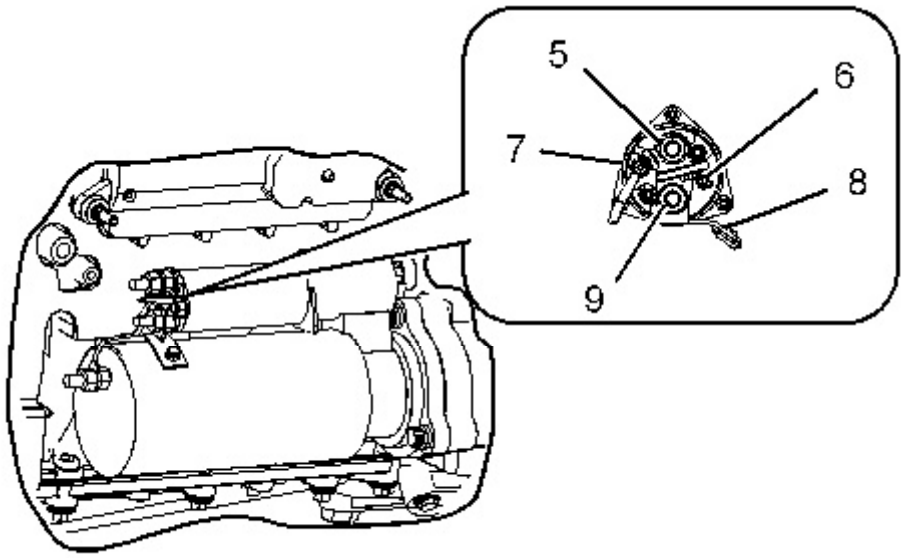

Illustration 3 g01117218

1. Fasten a suitable lifting device to electric starting motor (2). The weight of electric starting motor (2) is approximately 26 kg (57 lb).
2. Position electric starting motor (2) and gasket (4) on the flywheel housing. Install bolts (3).
3. Position the harness assembly on solenoid (1) and install nut (5). Tighten the nut to a torque of 31 ± 4 N·m (23 ± 3 lb ft).
4. Position the harness assembly on solenoid (1) and install nut (7). Tighten the nut to a torque of 2.25 ± 0.25 N·m (20 ± 2 lb in).
5. Position the harness assembly on solenoid (1) and install nut (6). Tighten the nut to a torque of 2.25 ± 0.25 N·m (20 ± 2 lb in).
6. If necessary, install the connector and install nut (9) and bolt (8). Tighten the nut and the bolt to a torque of 31 ± 4 N·m (23 ± 3 lb ft).
7. Connect the batteries.

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Product: EXCAVATOR
Model: 390D L EXCAVATOR WAP
Configuration: 390D L Excavator WAP00001-UP (MACHINE) POWERED BY C18 Engine

Disassembly and Assembly
C15 and C18 Engines for Caterpillar Built Machines
Media Number -RENR8261-28 **Publication Date -01/08/2015** **Date Updated -28/08/2018**

i06791558

Alternator - Remove and Install

SMCS - 1405-010

Removal Procedure

WARNING

Personal injury can result from failure to disconnect the battery.

First, disconnect the negative battery cable. Then, disconnect the positive battery cable.

A positive power lead can cause sparks if the battery is not disconnected. Sparks can possibly result in battery explosion or fire.

1. Disconnect the batteries.
2. Remove the alternator belt.
3. Place identification marks on all of the harness assemblies.

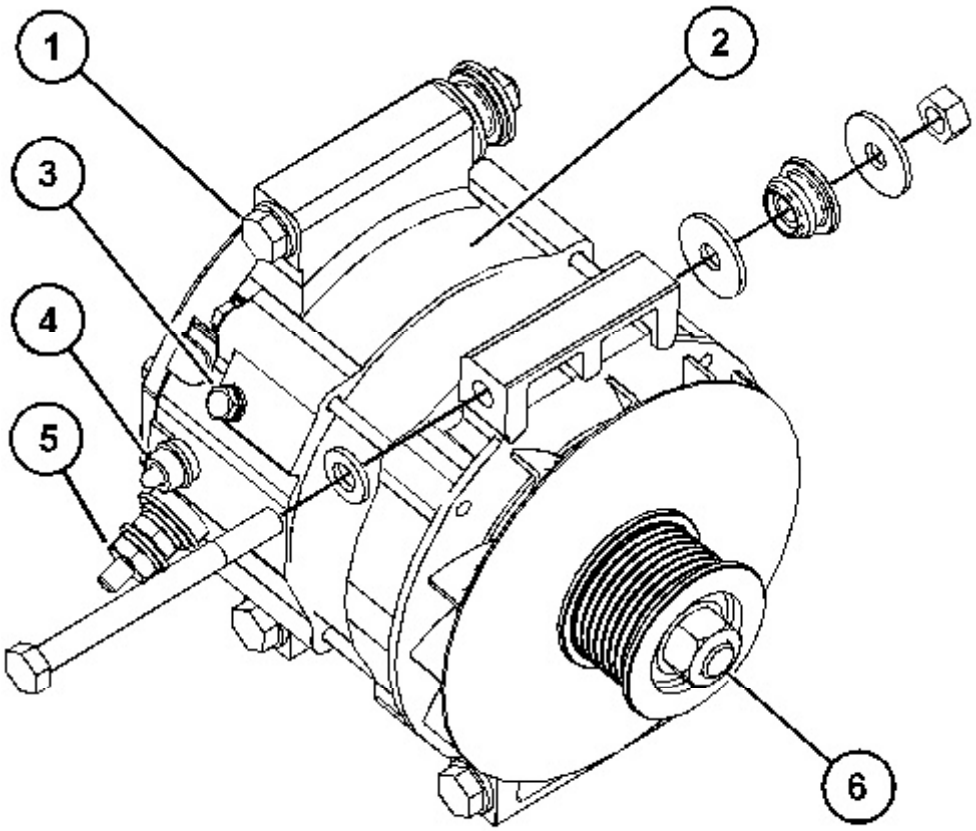

Illustration 1 g06116692

4. Disconnect the harness assemblies from terminal (4) and terminal (5).
5. Remove bolt (3) and the harness assembly from alternator (2).
6. Remove bolts (1). Remove alternator (2).
7. If necessary, remove nut (6) and remove the pulley from the alternator.

Installation Procedure

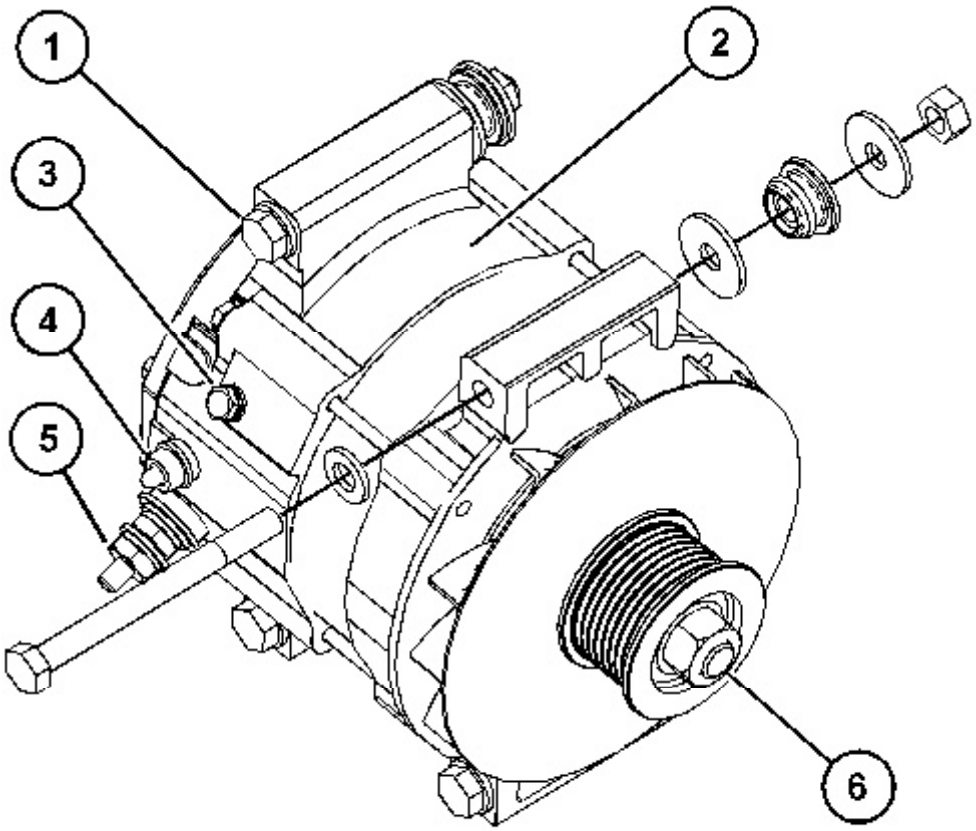

Illustration 2 g06116692

1. If necessary, install the pulley on alternator (2). Install nut (6). Tighten the nut to a torque of 127 ± 10 N·m (94 ± 7 lb ft).
2. Position alternator (2) on the alternator mounting bracket. Install bolts (1).
3. Connect the harness assembly to alternator (2) and install bolt (3). Tighten the bolt to a torque of 4.4 ± 1.0 N·m (39 ± 9 lb in).
4. Connect the harness assembly to terminal (5). Tighten the nut to a torque of 18 ± 2 N·m (13 ± 2 lb ft).
5. Connect the harness assembly to terminal (4).
6. Install the alternator belt.
7. Connect the batteries.

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Configuration: 390D L Excavator WAP00001-UP (MACHINE) POWERED BY C18 Engine

Disassembly and Assembly
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Media Number -RENR8261-28 **Publication Date -01/08/2015** **Date Updated -28/08/2018**

i02213663

Electronic Control Module - Remove and Install

SMCS - 1901-010

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

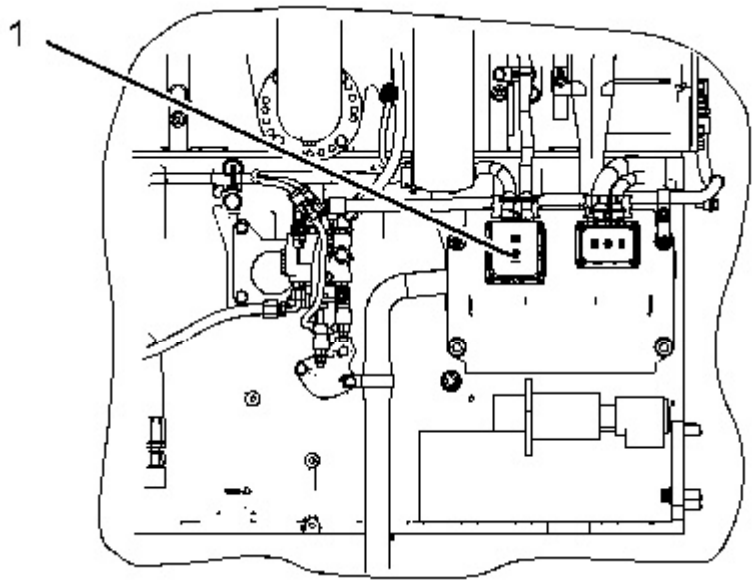

Illustration 1 g01117168

(1) Harness assembly ... 6 ± 1 N·m (53 ± 9 lb in)

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Disassembly and Assembly
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i02213633

Inlet Air Temperature Sensor - Remove and Install

SMCS - 1921-010

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

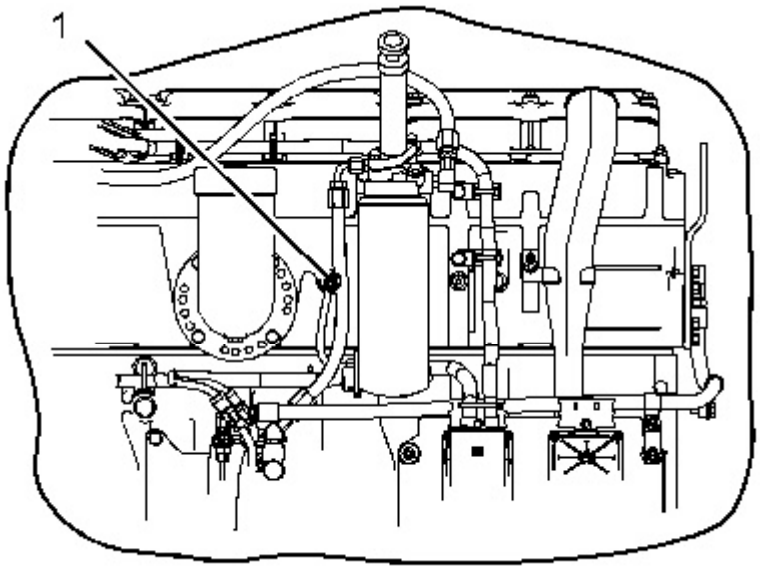

Illustration 1 g01117156

(1) Inlet air temperature sensor ... 20 ± 5 N·m (15 ± 4 lb ft)

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i02213607

Turbocharger Outlet Pressure Sensor - Remove and Install

SMCS - 1917-010

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

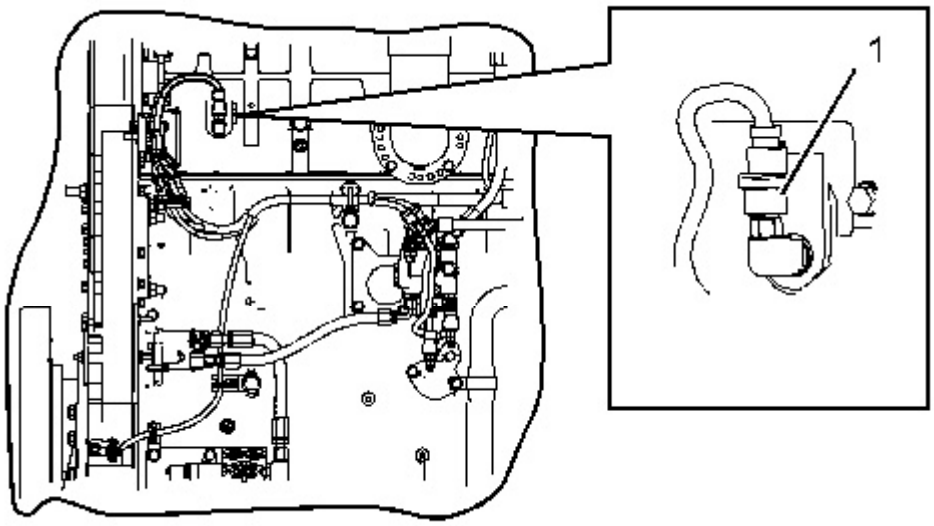

Illustration 1 g01117149

(1) Turbocharger outlet pressure sensor ... 10 ± 2 N·m (89 ± 18 lb in)

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Disassembly and Assembly
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i02213397

Fuel Temperature Sensor - Remove and Install

SMCS - 1922-010

NOTICE

Keep all parts clean from contaminants.

Contaminants may cause rapid wear and shortened component life.

NOTICE

Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting, and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.

Refer to Special Publication, NENG2500, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat products.

Dispose of all fluids according to local regulations and mandates.

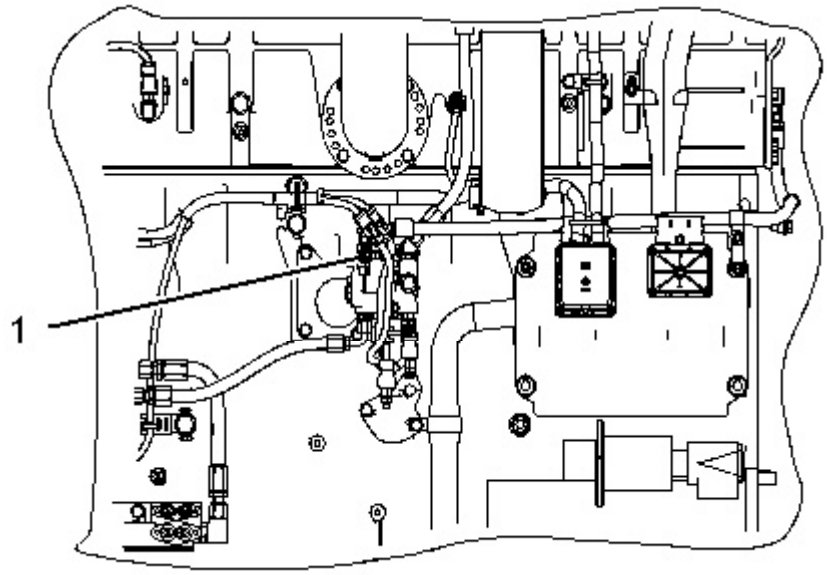

Illustration 1 g01117136

(1) Fuel temperature sensor ... 20 ± 5 N·m (15 ± 4 lb ft)

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